Title (en)

INTELLIGENT PROCESSOR/MEMORY ELEMENTS AND SYSTEMS

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Application

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Abstract (en)

[origin: EP0166466A1] The invention relates to an elementary component of an Intelligent Computing System. Its all basic functions - the basic operation, the system logic and the storage of information - are carried out by the elementary component which is universal in the sense of system independence and has Q stable states. In the basic operaton the Q states represent the Q-nary alphabet of the operational code. In the evaluation of Q-nary logical propositions, where K>/=Q, these Q states represent Q truth values as pure complementary values, while coherent superpositions of them represent the rest (K-Q) truth values. The results of basic and logical operations are stored distributively in a system of elementary components that occupy one of Q states, where in coherent superposition cases one of them is chosen probabilistically. A Q-nary logical relaxation can be attained by restricting to Q out of K balanced truth values. An elementary component of the invention is used in advantage to a finite network of identical elementary components for storage and/or processing of information in numerical (K=Q) and/or symbolic (K>Q) forms. A Möbius topological type network of a system of the invention appears to be an optimal interconnection network which performs a minimal amount of processing at each step of the execution, sequentially or in parallel, carries out minimal-switch routing and provides a degree of reliability that increases with an increasing number of elementary components. Moreover, storage and processing of information by such a system can be selfprotected to a high degree against natural or artificial disturbances. Together with the controlable memory structure it provides a comprehensive specification of an Intelligent Computing System, which complies with certain criteria of intelligence.

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